

What is claimed is:

1. A laser device for generating a laser beam by
5 supplying a pumping light to a laser medium contained in an
optical fiber comprising:

2. A laser device according to claim 1, wherein said fluid medium circulates through said pumping light reflecting portion.

3. A laser device according to claim 1, wherein said fluid medium is a coolant for cooling said optical fiber and said

a laser beam introducing port for introducing said pumping light into said pumping light reflecting portion,

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an optical fiber bundle in which said optical fiber forming at least one optical path is bundled,

a pumping light reflection portion covering at least a part of a side surface of said optical fiber bundle for repeatedly reflecting the pumping light so that said pumping light is

20 absorbed in said laser medium, and

25 8. A laser device according to claim 7, wherein a space
inside said pumping light reflection portion is filled with a
medium having a refractive index substantially the same as a
refractive index of said cladding of said optical fiber.

9. A laser device according to claim 7, wherein a space inside said optical fiber bundle is filled with a cooling medium to cool said optical fiber bundle.

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10. A laser device according to claim 7, wherein said optical fiber comprises a material selected from the group consisting of silica glass, fluoride glass, fluorophosphate glass, chalcogenide glass, oxychalcogenide glass, phosphate glass, telluride glass, borate glass, multicomponent aluminosilicate glass and plastic.

11. A laser device according to claim 7, wherein said laser medium is selected from the group consisting of Nd^{3+} , Yb^{3+} , Er^{3+} , Pr^{3+} , Ce^{3+} , Tm^{3+} , Ho^{3+} , Tb^{3+} , Dy^{3+} , Eu^{3+} , Eu^{2+} and organic dye.

12. An optical signal amplifier for amplifying an optical signal by using an optical fiber, said optical fiber having a core in which a laser medium is doped and a cladding covering said core, said optical signal amplifier comprising:

an optical fiber bundle in which said optical fiber forming at least one optical path is bundled,

a pumping light introducing portion for introducing pumping light for pumping said laser medium in said optical fiber bundle, said pumping light introducing portion being bundled together with said optical fiber bundle,

a pumping light reflection portion covering at least a part of a side surface of said optical fiber bundle for repeatedly reflecting the pumping light so that said pumping light is absorbed in said laser medium, and

5 an output portion for outputting an optical signal
amplified by said laser medium pumped by the pumping light.

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